



U.S. Department of Transportation
Pipeline and Hazardous Materials
Safety Administration

1200 New Jersey Ave. SE
Washington, D.C. 20590

DEC 14 2010

Mr. Greg Grillo
Cryofab, Inc.
540 N. Michigan Ave.
Kenilworth, NJ 07033

Reference No.: 10-0210

Dear Mr. Grillo:

This is in response to your October 6, 2010 email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the transportation of liquid helium by aircraft. Specifically, you ask if cylinders and packagings that are authorized by the HMR under § 173.320 for highway and rail transport are also authorized for air transport by the appropriate national authority, the United States Department of Transportation.

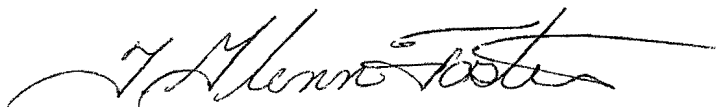
The general requirements for cryogenic liquids in cylinders are found in § 173.316 and require cryogenic liquids to be transported in specification DOT-4L cylinders. In addition to these requirements, packaging exceptions for cryogenic liquids are found in § 173.320 and allow for alternative packaging methods. Section 173.320 specifies that atmospheric gases (e.g., oxygen, nitrogen, carbon dioxide) and helium in Dewar flasks, insulated cylinders, insulated portable tanks, insulated cargo tanks, and insulated tank cars, designed and constructed so that the pressure in such packagings will not exceed 25.3 psig under ambient conditions during transportation are not subject to the requirements of the HMR when transported by motor vehicle or railcar except as specified in paragraphs (a)(1), (a)(2), and (a)(3) of this section.

As stated in § 173.320(c), for transportation aboard aircraft, the HMR requires cryogenic liquids to be packaged in accordance with the International Civil Aviation Organization (ICAO) Technical Instructions, Packing Instruction 202 and the packaging specifications in part 6, chapter 5. The ICAO Technical Instructions section 5.1.1.2 authorized a cryogenic liquid, such as helium, to be transported in packages not in compliance with UN specifications if approved by the appropriate national authority in the countries of transport and use. Therefore, if the requirements in the ICAO Technical Instructions that are referenced in § 173.320(c) cannot be met, an approval would be required to transport atmospheric gases (e.g., oxygen, nitrogen,

carbon dioxide) and helium in Dewar flasks, insulated cylinders, insulated portable tanks, insulated cargo tanks, and insulated tank cars via air in accordance with the HMR. The procedures to apply for an approval are specified in 49 CFR § 107.705.

I hope this satisfies your inquiry. Please contact us if we can be of further assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Glenn Foster". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

T. Glenn Foster
Chief, Regulatory Review and Reinvention Branch
Standards and Rulemaking Division

Benedict
\$173.301
\$171.23

Drakeford, Carolyn (PHMSA)

From: INFOCNTR (PHMSA)
Sent: Wednesday, October 06, 2010 1:13 PM
To: Drakeford, Carolyn (PHMSA)
Cc: DerKinderen, Dirk (PHMSA)
Subject: FW: Interpretation

Cylinders
10-0210

Hi Carolyn,

We received the following request for a formal letter of interpretation at the Info Center.

Thanks,

Victoria Lehman
202-366-1035

From: Greg Grillo [mailto:greg@cryofab.com]
Sent: Wednesday, October 06, 2010 1:04 PM
To: INFOCNTR (PHMSA)
Subject: Interpretation

To Whom It May Concern,

Cryofab, Inc., a leading domestic manufacturer of portable liquid helium cylinders, is seeking a formal interpretation of the rules regarding the shipment by air of liquid helium in cylinders. Recent changes in ICAO/IATA regulations have reinforced the need for clarity on this issue. Those regulations have migrated toward increasing complexity and have become very onerous. There is not a single helium dewar in the US fleet that is certifiable to the current regulations so there is great motivation to find a workable approach to achieve compliance.

The guidance in the HMR is to refer to ICAO Part 6 Chapter 5 in cases of air shipment. There we find (2) options: build cylinders in accordance with ISO21029-1:2004 (very difficult) or build cylinders that are approved by the appropriate national authority. The second option is potentially much more attractive and desirable. So what I've been trying to figure out for quite some time is whether cylinders that are authorized by Title 49 of the CFR for road and rail (by virtue of their less than 25 PSI operating pressure) are also authorized for air by the appropriate national authority, DOT. And if not, then what would the appropriate national authority require of cylinders in order for them to be authorized. I have corresponded with Shane Kelley on this matter a number of times over the course of the last year and a half but we have not reached a firm conclusion. A sensible resolution would be very helpful to the industrial gas industry.

Regards,

Greg Grillo
Technical Director
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